REMARKS/ARGUMENTS

Claims 1, 2 and 4-7 are pending. By this Amendment, claim 3 is cancelled, and claim 1 is amended. Support for the amendments to claim 1 can be found, for example, in original claims 1 and 3. No new matter is added. In view of the foregoing amendments and following remarks, reconsideration and allowance are respectfully requested.

Rejection Under 35 U.S.C. §102

The Office Action rejects claims 1 and 7 under 35 U.S.C. §102(b) over U.S. Patent No. 4,877,840 to Chu ("Chu"). Applicants respectfully traverse the rejection.

Claim 1 recites "[a] method for granulating a flexible polyolefin resin, comprising: melting a flexible polyolefin resin obtained by polymerizing an α-olefin with 3 to 20 carbon atoms using a metallocene catalyst, and melt-kneading the resin while cooling the resin to a temperature of the melting point (Tm-D) of the resin or less" (emphasis added). Chu does not disclose or suggest a method.

As indicated above, by this Amendment, claim 1 is amended to recite "a flexible polyolefin resin obtained by polymerizing an α-olefin with 3 to 20 carbon atoms using a metallocene catalyst" (emphasis added). That is, claim 1 is amended to exclude polyethylene from the recited flexible polyolefin resin.

According to the method of Chu, a modifying agent is added to a polyolefin resin matrix. *See, e.g.,* Chu, Abstract. Chu generally indicates that the polyolefin resin matrix can include an α-olefin having 2 to10 carbon atoms. *See* Chu, column 2, lines 19 to 21. However, in each and every example of Chu, the employed polyolefin resin is a linear low density polyethylene. Chu generally indicates that suitable modifying agents may include polyisobutylenes, silicones, polyalkylene glycols, and ethoxylated tertiary salts of carboxylic acids. *See* Chu, column 3, lines 11 to 13. However, again, in each and every Example of

Chu, the employed modifying agent is polyisobutylene. Accordingly, Chu appears to specifically disclose only methods of making polyolefin particulates by blending a molten polyethylene matrix with polyisobutylene as the modifying agent.

In each of the Examples of Chu, the modifying agents are in a liquid state at room temperature. Accordingly, the method of Chu is a method in which a liquid modifying agent is added to polyethylene and the polyethylene is rendered particulate a temperature of the melting point of polyethylene or lower. By contrast, in claim 1, a polyethylene is not employed. Moreover, claim 1 does not require a modifiying agent. Claim 1 is directed to a method in which a polyolefin resin obtained by polymerizing an α-olefin having 3 to 20 carbon atoms is molded into granulates at a temperature of the melting point of the polyolefin or lower. The method of claim 1 differs from the method of Chu.

A polyolefin resin obtained by polymerizing an α-olefin having 3 to 20 carbon atoms, as recited in claim 1, generally has a crystallization time of 3 minutes or longer at room temperature. *See* present specification, paragraph [0025]. According to the method of claim 1, when the polyolefin resin is cooled to a temperature below its melting point, the polyolefin resin is brought into a super-cooled state, but does not lose its fluidity – that is, even if the polyolefin resin is cooled below its crystallization temperature, the polyolefin resin does not easily crystallize. Accordingly, the polyolefin resin maintains flowability during melt-kneading at a temperature below its melting point and crystallizes for the first time when extruded from a kneader, so that the polyolefin resin is easily cut and a degree of tackiness of the in the resulting granules is reduced. *See* present specification, paragraph [0026].

By contrast, it well known by those of ordinary skill in the art that polyethylene, as employed in Chu has an extremely rapid rate of crystallization, i.e., an extremely short crystallization time. According to the POLYMER HANDBOOK (relevant excerpt attached hereto), polyethylene having a molecular weight of 190,000 (similar to the polyethylene

employed in Chu) has a crystallization temperature of 98.1 °C and a crystallization half-time of 9.6 seconds. *See* POLYMER HANDBOOK, Table 10. Moreover, it is apparent from the POLYMER HANDBOOK that the lower the crystallization temperature of a polymer, the shorter its crystallization time. Accordingly, at room temperature, the rate of crystallization of the polyethylene employed in the Examples of Chu would be too rapid to be measured. Further, Chu discloses that the extrusion step may be omitted if the method is a batch process. *See* Chu, column 2, lines 3 to 4. In such case, the masticated blend would be in an incompacted, irregularly-shaped particulate form, e.g., a fluffy or fibrous form. *See* Chu, column 2, lines 5 to 7. Accordingly, in Chu, the employed polyolefin resin becomes particulate before extrusion.

By contrast, according to the method of claim 1, the employed polyolefin resin maintains flowability during melt-kneading and crystallizes for the first time when extruded from a melt-kneader as discussed above. Because polyethylene, as employed in Chu, has a crystallization time much shorter than that of the polyolefin resin employed in the method of claim 1, the effect of the present invention is not obtained in Chu. That is, the method of Chu does not provide the effect of the method of claim 1, and one of ordinary skill in the art would not expect that the method of Chu would be workable using polymers such as recited in claim 1.

As Chu fails to disclose or suggest a method of granulating a flexible polyolefin resin obtained by polymerizing an α-olefin with 3 to 20 carbon atoms using a metallocene catalyst, Chu fails to disclose or suggest each and every feature of claim 1.

As explained, claim 1 is not anticipated by Chu. Claim 7 depends from claim 1 and, thus, also is not anticipated by Chu. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Rejection Under 35 U.S.C. §102/§103

A. Chu

The Office Action rejects claim 2 under 35 U.S.C. §103(a) over Chu. Applicants respectfully traverse the rejection.

Chu fails to disclose or suggest each and every feature of claim 1 for at least the reasons discussed above. Accordingly, claim 1 would not have been rendered obvious by Chu. Claim 2 depends from claim 1 and, thus, also would not have been rendered obvious by Chu. Reconsideration and withdrawal of the rejection are respectfully requested.

B. Chu and Minami

The Office Action rejects claims 3, 4 and 6 under 35 U.S.C. §103(a) over Chu in view of U.S. Patent Application Publication No. US 2003/0069320 to Minami et al. ("Minami"). Applicants respectfully traverse the rejection.

Chu fails to disclose or suggest each and every feature of claim 1 for at least the reasons discussed above. Minami does not remedy the deficiencies of Chu. Minami is cited for its alleged disclosure of a 1-butene based polymer. *See* Office Action, page 4. However, for the reasons discussed above, one of ordinary skill in the art would not expect that the polymer of Minami would be workable in the method of Chu. Accordingly, the combination of references fails to suggest the method of claim 1.

As explained, claim 1 would not have been rendered obvious by Chu and Minami. Claims 3, 4 and 6 depend from claim 1 and, thus, also would not have been rendered obvious by Chu and Minami. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

C. Chu and Miller

The Office Action rejects claims 3 and 5 under 35 U.S.C. §103(a) over Chu in view of U.S. Patent No. 6,469,188 to Miller et al. ("Miller"). Applicants respectfully traverse the rejection.

Chu fails to disclose or suggest each and every feature of claim 1 for at least the reasons discussed above. Miller does not remedy the deficiencies of Chu. Miller is cited for its alleged disclosure of an elastomeric polypropylene. *See* Office Action, page 5. However, for the reasons discussed above, one of ordinary skill in the art would not expect that the polymer of Miller would be workable in the method of Chu. Accordingly, the combination of references fails to suggest the method of claim 1.

As explained, claim 1 would not have been rendered obvious by Chu and Miller. Claims 3 and 5 depend from claim 1 and, thus, also would not have been rendered obvious by Chu and Miller. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Conclusion

For the foregoing reasons, Applicants submit that claims 1-7 are in condition for allowance. Prompt reconsideration and allowance are respectfully requested.

Respectfully submitted,

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Attachment:
Excerpt from POLYMER HANDBOOK